

Geology

The geology of Nova Scotia lies within the Appalachian Mountain chain of Eastern North America. The highly complex assemblage of rocks found here ranges in age from Middle Precambrian to Cretaceous, with the oldest being approximately 1.4 billion years.

The Province can be divided into two distinct geological zones or terranes separated by a major fault complex running east-west from Canso, Guysborough County, to Truro, Colchester County. The Cobequid-Chedabucto Fault Zone separates the Avalon Terrane to the north from the Meguma Terrane to the south. Prior to Devonian times the Terranes were separated by several hundred kilometres, developing distinctly different geological signatures. The erosion resistant uplands of the Avalon Terrane contain the oldest rocks in the

Province, dating back to the Precambrian. They comprise a variety of metamorphic rocks including gneisses, schists, quartzites, marbles and metavolcanics. The oldest rocks of the Meguma Terrane are Cambrian to Silurian in age, consisting of slates, greywackes, quartzites and metavolcanics. Four hundred million years ago the two Terranes slid toward one another during several stages of plate collision. During the "docking" of the Meguma Terrane adjacent to the Avalon Terrane, a series of interconnected sedimentary basins developed. The eroded remnants of the basins are generally seen today as lowland pockets of unmetamorphosed Devonian, Carboniferous and Triassic sedimentary rocks.

By approximately 290 million years before present the Terranes had welded together into their present position. From Precambrian to Carboniferous, periodic episodes of mountain building resulted in the emplacement of several stages of granitic intrusives into both Terranes.

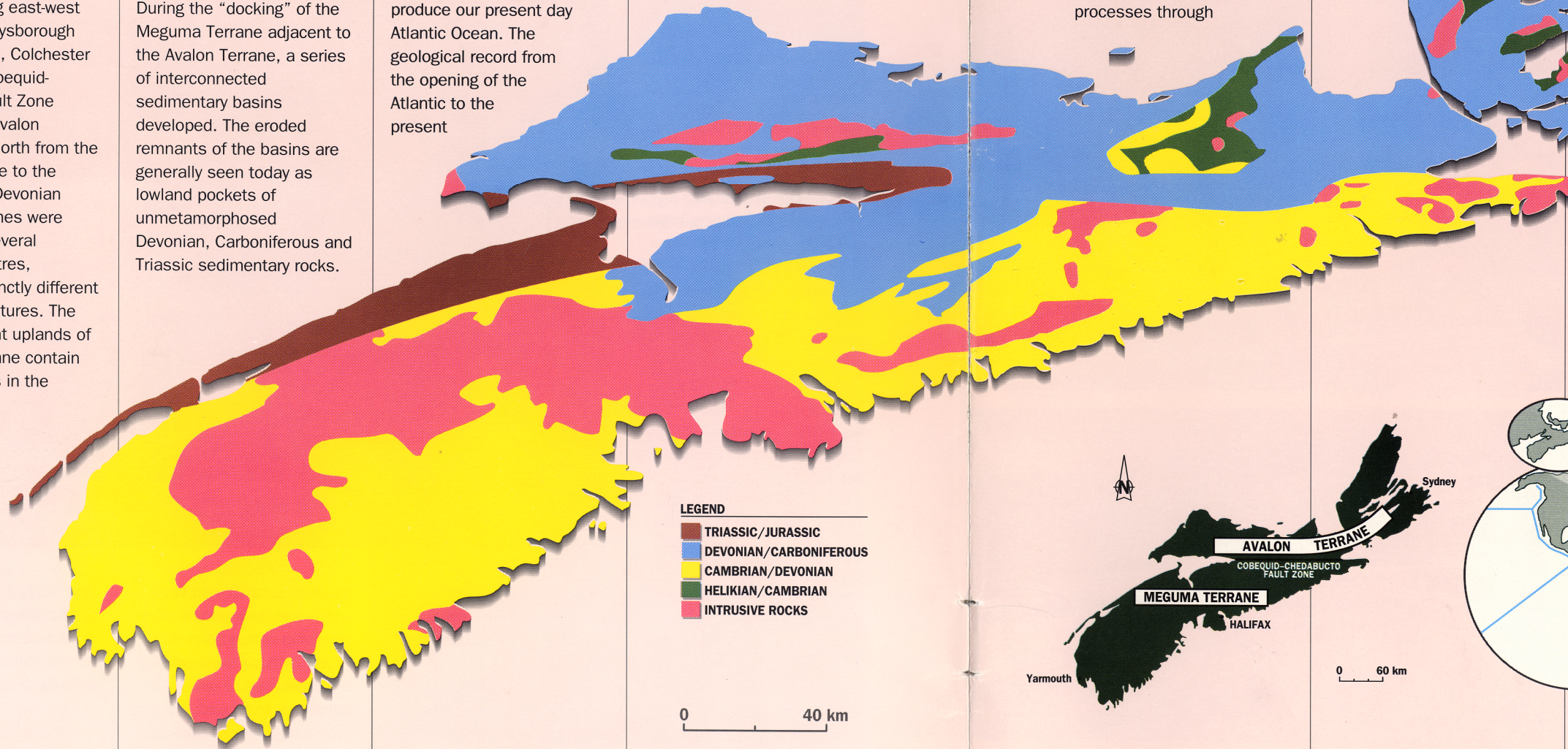
From 290 to 140 million years ago, Nova Scotia was caught within a supercontinent which subsequently broke apart to produce our present day Atlantic Ocean. The geological record from the opening of the Atlantic to the present

has largely been obscured by erosion and deposition associated with episodic glacial movement over Nova Scotia during the last 100 000 years. However, sedimentation over the Province continued at least into the Cretaceous, as evidenced by the rare occurrences of Jurassic sedimentary rock and unconsolidated Cretaceous sediments. The completion of the geological record is a thick blanket

of Pleistocene glacial drift, modified by the modern fluvial and marine processes of the last 12 000 years, and covering most of the Province's bedrock.

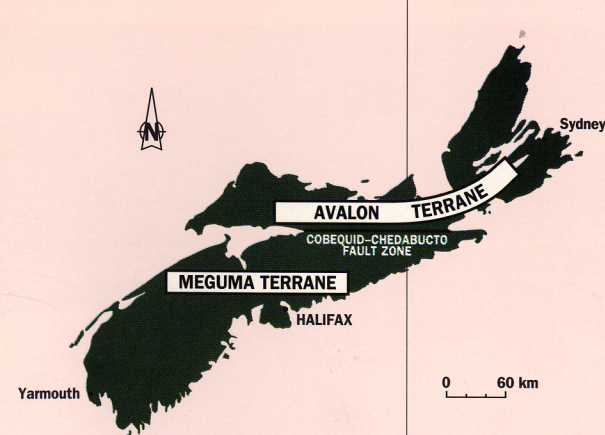
This diversity of geology has played an important role in making industrial mineral mining a success in Nova Scotia. From the arid evaporitic basins of the Carboniferous to the disintegration of the glacial ice sheets of the Pleistocene, geological processes through

time have favoured the production of a variety of industrial mineral deposits. Increasing knowledge and understanding of these processes should provide the necessary framework for the continued success of industrial mineral production in the Province in the future.



LEGEND
 TRIASSIC/JURASSIC
 DEVONIAN/CARBONIFEROUS
 CAMBRIAN/DEVONIAN
 HELIKIAN/CAMBRIAN
 INTRUSIVE ROCKS

0 40 km



0 60 km

